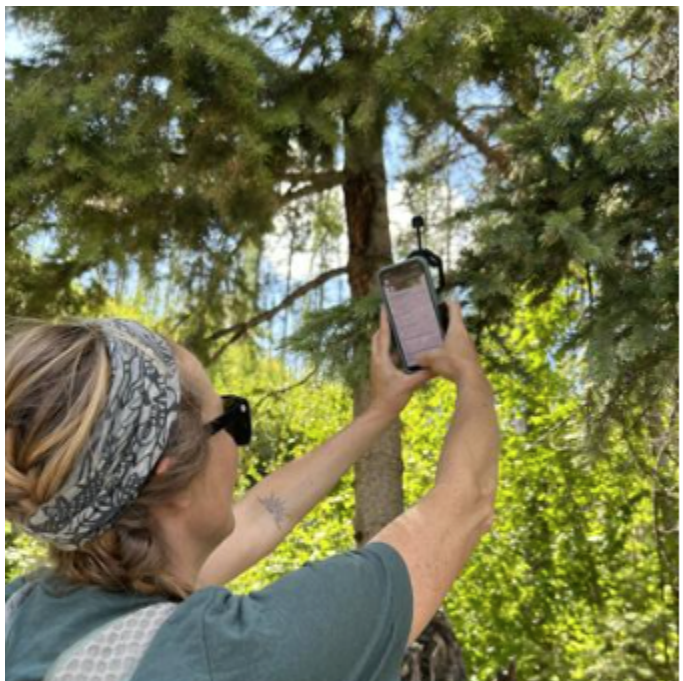
Free training, breakfast, beer on tap for citizen-science seed survey

Getting outside is often touted as a way to disconnect from smartphones and other screens — but a new citizen-science initiative in Montana hopes to get people and their phones outdoors with the goal of helping reforestation.

Adventure Scientists, a 14-year-old nonprofit based in Bozeman, is training volunteers to scout for conifer seed cones from five species on seven western Montana national forests. It's part of the group's second **Western U.S. Reforestation Project**, which also includes six tree species on eight forests in California.



A citizen-science volunteer logs a seed cone as part of Adventure Scientists' Western U.S. Reforestation Project.

Courtesy of Adventure Scientists

All volunteers need is a smartphone on which they can download Adventure Scientists' free app. Training on seed cone identification and reporting is provided through the app. Volunteers can also see which geographic grids in the project need data. Then they go outside and start looking.

Alison Ormsby is the associate director of design and the forest specialist for Adventure Scientists. She holds a doctorate in environmental studies, was a professor for 20 years and has conducted research on forests around the globe.

"You don’t need any previous skills," she said. "You don’t need to know how to ID the cones — we’ll teach you how."

In Montana, volunteers are looking for seed cones from Douglas fir, Engelmann spruce, ponderosa pine, lodgepole pine and western larch trees. The project includes the Lolo, Bitterroot, Flathead, Kootenai, Helena-Lewis & Clark, Beaverhead-Deerlodge and Custer-Gallatin national forests.

The project kicked off June 5 and runs through Aug. 31. Volunteers can sign up anytime at

adventurescientists.org/reforestation-western-us-application.html.

The Western U.S. Reforestation Project, Ormsby said, is a collaboration between Adventure Scientists and Mast Reforestation. Volunteers find and report seed cones, which Mast then collects and grows in a nursery to provide for reforestation efforts like post-fire reforestation by the U.S. Forest Service.

"There definitely is a seed shortage," she said, naming the species the project is targeting. "Those are the ones that are the native species that are good for replanting."

"Forests in the Western U.S. are being devastated by wildfires, climate change and other factors, diminishing their ability to regenerate," Adventure Scientists stated in announcing this year's seed cone project. "The U.S. Forest Service is only able to re-plant approximately 20% of national forest lands that need reforestation. One of the challenges to regeneration is the ability to establish seedlings and saplings. Volunteers' images and survey data will help direct reforestation experts to collect seeds from cones and grow seedlings that will aid in reforestation."

This volunteer effort — like others the nonprofit conducts in the arenas of forests, freshwater, biodiversity and climate — targets projects that need "big data at scale" for a partner organization, Ormsby said, in this case Mast.

More than 100 people participated in the project last year, according to Adventure Scientists. And 150 people have signed up to participate this year: 57 in Montana and 93 in California.

"We want a lot more," Ormsby said. "We'd like to get to about 1,000, at least 1,000."

Courtesy of Adventure Scientists

To that end, Adventure Scientists is hosting a free in-person training session at the Missoula Public Library 10-11:30 a.m. on July 27. Breakfast will be offered beginning at 9:30 a.m. After the training, volunteers can get outside for a field session of scouting for seed cones. Then there's a post-fieldwork gathering with free beer 2-4 p.m. at Imagine Nation Brewing. More information and RSVP is available at **adventurescientists.org/reforestation-mt-2024.html**.

With a need for data across forests, not just in the most popular locales frequented by most visitors, Ormsby said, "Toward the end of the summer in early August we'll start doing a push for the places where we have data gaps, start getting people out to maybe more remote locations."

The reforestation project is one of many Adventure Scientists conducts in the forestry world. Another annual project asks volunteers to collect leaves from various tree species to be shipped to a Forest Service lab in Corvallis, Oregon, where the agency analyzes the tree's "genetic fingerprint," Ormsby said. The data can help track species' home ranges and investigate and prosecute timber theft.

And Adventure Scientists isn't the only group to offer citizen science in western Montana.

Around Missoula, **nonprofit Watershed Education Network routinely employs volunteers** to conduct stream data collection ranging from stream cross-section measurements to bug collection and water samples. Their work has helped quantify and track Rattlesnake Creek's recovery after the Rattlesnake Dam was removed in 2020.

More broadly, Mountain Rain or Snow — a NASA-funded collaboration between the Desert Research Institute; University of Nevada, Reno; and Lynker, an environmental science and technology company — has in recent years **recruited volunteer weather observers across western Montana to report whether precipitation is falling as rain, snow or a mix** of the two when air temperature is around freezing.

A volunteer handles a seed cone as part of Adventure Scientists' Western U.S. Reforestation citizen-science project. The Bozeman-based nonprofit offers free training via an app that allows volunteers to find and report seeds needed for reforestation.

Courtesy of Adventure Scientists

It's part of the group's effort to better understand the meteorological and geographic factors across the West and New England that determine why precipitation switches between rain and snow at different temperatures in different places. The program came about primarily because **satellites, a cornerstone of modern weather forecasting and monitoring, can struggle to answer the basic question of whether it's raining or snowing**. But human

observers can easily tell the difference and report it in a free phone app.

And Adventure Scientists has more projects coming to Montana. Ormsby said a bumblebee atlas project is forthcoming. Regardless of the project, she said, citizen-science projects are a simple but vital way to aid conservation efforts.

"It’s so tangible, you feel like you’re doing something," she said. "You’re contributing to data, and it has an applied conservation value."

Joshua Murdock covers the outdoors and natural resources for the Missoulian. He previously served as editor-in-chief of The Boulder Monitor in Jefferson County, Montana, and has worked as a newspaper reporter and photographer in rural towns in Idaho and Utah.